Pentagonal Shaped Multi-Wideband Antenna for Indoor Wireless Communication

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 180
Number 47

Year of Publication: 2018

Authors:
Pratap N. Shinde, Jayashree P. Shinde

10.5120/ijca2018917273

Abstract

A coplanar waveguide feed pentagonal shape band-notched monopole antenna is proposed for multi-wideband operation. To avoid the potential interference of existing narrow bands with ultrawideband, the open ended slots embedded in monopole radiating surface and thin ground plane are used as notch filter centered at 3.5 GHz and 7.5 GHz respectively. The open circuit semi-spirally extended thin ground plane is designed for rejection of the band centered at 5.2 GHz. The Bandwidth is enhanced by suppressing the spurious notch band. The four operating bands developed due to the insertion of three notch bands, have -10 dB impedance bandwidth of 594 MHz (2.714-3.308 GHz), 990 MHz (3.952-4.942 GHz), 1.12 GHz (5.964-7.088 GHz) and 3.1 GHz (8.25-11.35 GHz) respectively. Group delay less than 1ns across all operating bands show good signal integrity. The radiation patterns in the H-plane are omnidirectional with low cross polarization levels and bidirectional in the E-plane. The simulated and measured results are in good agreement.

References

Index Terms

Computer Science  Wireless

Keywords

Pentagon, full band, multi-wideband, notch filter, open ended slot.